

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,435,056 (Liechty).**
3. In re claim 1, Liechty discloses a device for installing a piston ring comprising: a base (144); a guide member (10) fixed to the base; a piston pressing member (actuator not shown, column 4, lines 17-23) disposed above the base and supported movably toward a concave part of the guide member, and having a centering part that performs a centering action while depressing the piston suspended downwardly in the vertical direction; and a ring feeding mechanism (30) that feeds the piston ring guided by the guide member upwardly.

Regarding the limitation of "a guide member disposed in the through-hole and fixed to the base", the base of Liechty does not completely encompass the guide member, but only partially surrounds the guide member as best shown in figure 3. However, the base of Liechty serves the same purpose of supporting the ring sensor and a base that completely surrounds the guide member is not critical to the patentability of the claim.

Regarding the limitation of "a centering part", columns 3 and 4 of Liechty disclose conveying the piston around to the guide member, then pressing the piston down into the guide member. The piston must be centered to some degree to be correctly inserted into the guide member, thus meeting the limitations of the claim.

4. In re claims 3 and 4, Liechty discloses a driving mechanism including: a vertically movable member (6) driven in a vertical direction; a horizontally movable member (8) that holds the pressing member (actuator not shown, column 4, lines 17-23); and a cam member (PR) that exerts a cam action onto a follower (121) provided on the horizontally moving member. It would have been obvious to move both vertically and horizontally at the same time forming an oblique movement instead of horizontally then vertically. One would be motivated to move obliquely to get the piston from one station to the next quicker.

Regarding the limitation of "a notch part", as best seen in figure 1, the piston mounting member (4) of Liechty is fixed to the free end of the connecting rod (CR) and also contacts the top of the piston (P). Although not clearly disclosed in the figures, the mounting member must have a space for the connecting rod to pass through to the piston, meeting the claimed limitation.

5. In re claim 5, Liechty clearly anticipates the claimed matter.

6. In re claim 6, Liechty discloses a positioning block 24 to come in contact with and vertically position the piston. It would have been an obvious matter of design choice to use 1 or more blocks in various arrangements.

7. In re claim 7, Liechty discloses a ring sensor (130).

8. **Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liechty in view of US Patent 3,707,027 (Davis).**

9. In re claim 2, Liechty discloses the claimed invention except for a tapered inner wall surface widened downwardly. Centering a piston by pulling it into a tapered opening is old and well known. Davis discloses a tapered sleeve used to center a piston being inserted into an engine bore. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the piston mounting structure (4) of Liechty to pull a piston into a taper, as disclosed in Davis, in order to center said piston.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMAL DANIEL whose telephone number is (571)270-5706. The examiner can normally be reached on Monday - Friday 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on (571)272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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